

REPORT
OF
THE SECRETARY OF WAR,

COMMUNICATING

(In compliance with a resolution of the Senate)

Information of facilities of approach to, and intercourse with, the mineral region of Lake Superior.

FEBRUARY 17, 1845.

Read, and referred to the Committee on Printing.

FEBRUARY 20, 1845.

Ordered to be printed.

WAR DEPARTMENT, *February 14, 1845.*

SIR: In answer to a resolution of the Senate of the United States of the 11th instant, requiring the Secretary of War "to communicate to the Senate any plan which he may have devised, or which may be in possession of the Department of War, by the adoption of which greater facilities of approach to, and intercourse with, the mineral region of Lake Superior will be afforded, and its wealth and importance be more fully developed," I transmit, herewith, a report of the Colonel of the Corps of Topographical Engineers, containing the best information now in the possession of the department relative to the objects of the resolution.

Very respectfully, your obedient servant,

WILLIAM WILKINS,
Secretary of War.

HON. W. P. MANGUM,
President of the Senate.

BUREAU OF TOPOGRAPHICAL ENGINEERS,

Washington, February 13, 1845.

SIR: I have the honor to acknowledge your directions to report upon a resolution of the Senate of the 11th instant, calling upon the Secretary of War "for any plan which he may have devised, or which may be in the possession of the Department of War, by the adoption of which greater

facilities of approach to, and intercourse with, the mineral region of Lake Superior will be afforded, and its wealth and importance be more fully developed."

The department has heretofore presented two views to the consideration of Congress, which fall within the scope of this resolution. One is the construction of a ship canal to overcome the rapids of St. Mary, and to establish a connexion between Lakes Huron and Superior. The other is the opening of a road from the head of Green bay to Copper harbor. This road, however, was rather considered in its military relations, in order to establish means of intercourse between the post at Copper harbor and that of Green bay, during seasons when the lake was impassable; but, in addition to these properties, it will be found to afford many facilities to the mineral region of Lake Superior.

An interesting report, however, from Mr. Sanders, an agent of the Ordnance department, applying more directly to the design of the resolution, having been lately received, I have the honor of submitting an extract from it, as an appendix to this. By this report it will be perceived that that intelligent agent recommends the opening of several trails, of about eight feet wide. These are intended to be merely pack-horse roads. There can be no doubt of the facilities which they would render to the mining region, as well in efforts to explore it as in means of getting the mineral to a harbor. But there is also no doubt, in my judgment, that the road from Green bay to Copper harbor should differ in its character from these trails, and should be similar to the plan recommended by this bureau in its report of the 30th December, 1844.

It is, however, very clear, that these or any other roads or trails, desirable and essential as they may be, will yet be found to aid but little in developing the wealth of the mineral region of Lake Superior, unless assisted by that essential and all-important measure, the construction of a canal to overcome the St. Mary falls.

By the aid of these roads, the country may be explored, mining operations may be commenced, and the mineral may be brought to the lake shore. But there it will have to remain, a dead loss upon the hands of the enterprising miner, unless he is able to send it to a market. With present physical obstacles, this mineral cannot now be sent to a market; or means to smelt it in that region be obtained; the falls of St. Mary presenting an insuperable difficulty, which will have first to be reduced.

These falls constitute the connecting link between Lakes Superior and Huron, and they are not merely obstructions to the development of the mineral resources of that region, but also of the agricultural and commercial resources of that lake and its fertile shores. Moreover, these falls also constitute the chief and serious difficulties to the supply, succor, and maintenance, of the military posts of that lake.

It will be seen, therefore, that not only as a means, without which all others are but secondary and inefficient, of developing the wealth of the mineral region of Lake Superior, a canal to pass these falls becomes an absolute necessity, but also that it is essential to the commercial and agricultural resources of that region, and to its economical and proper military defence. It was under the influence of these convictions, that the construction of this canal was recommended in your annual report of last December.

A plan and estimate for the canal was submitted to the consideration of the Senate, in a report from this office dated the 3d January, 1844, and a bill appropriating \$100,000 for the commencement of the work received the approbation of the Senate during its last session ; but for want of time it was not taken up in the House of Representatives, and did not therefore become a law. Believing it, however, to be the most essential feature in accordance with the resolution of the Senate of the 11th instant; it is again recommended to consideration.

The estimate for the road from Green bay having been furnished, and also that for the canal around the falls of St. Mary, it only remains to speak of the probable cost of these trails. Mr. Sanders is of opinion that the cost of these may be put down at ten dollars the mile, exclusive, however, of the "cord-du-roy bridges" over swamps. He cannot speak of the cost of these, as he is not aware of the extent of swamp which would have to be passed.

Very respectfully, sir, your obedient servant,

J. J. ABERT,
Col. Corps Top. Engineers.

HON. WILLIAM WILKINS,
Secretary of War.

REPORT.

SIR : Previous to your arrival at Copper harbor, I was occupied in explorations on Keweena point. My observations were for the most part confined to the lake shore, and the washings of Montreal, Eagle, and Trap rivers.

Copper harbor forms an oval two miles in length, parallel with the lake ; the entrance, about a third of a mile wide, near to the eastern end. In that part of the harbor sheltered by Porter island, upon which fronts the Government house, vessels of the largest size on the lakes may safely ride out the severest gales. The superiority of this harbor is such, that any other improvement than a light-house would be superfluous; this, however, is important.

On the lake shore near the entrance to the harbor, on the eastern side, was a rich column of green carbonate of copper, visible for some miles out in the lake. It has, however, been reduced by miners and speculators to a small mound. There is a wide spar vein running from the mound into the lake, which can be seen to a considerable depth. On the brook conducting Lake Martha to the beautiful inisled Valley lake, Fanny Hooe, is a large vein of manganese. Leaping several precipices, the dashing brook has wrought out for itself, in the conglomerate, a channel of more than a hundred feet deep. Its fine trout and romantic attractions make it a charming resort for visitors to the harbor.

Along the coast from Copper harbor to the extremity of Keweena point, about ten miles, nothing is seen but the unsightly conglomerate and a few half-starved trees. The trap rock extends into the bay most of the distance between the point and Montreal river. Several wide veins of rock have here been found, which it is estimated will yield from ten to fifteen per cent. virgin copper. Timber is abundant, and the falls at the mouth of the Montreal river give a profusion of excellent water power. Sand-

stone only appears from Montreal to Portage river. There are six feet water on the bar at the mouth of the latter river, as surveyed by Major Campbell, and not less than that any where between the mouth and Portage Lake, on which there are several very rich spots of maple land. At the mouth of Alder river, there are Indian old fields of many acres in extent, situated on the table land nearly one hundred feet above the level of the lake. From thence is a rich view of Portage Lake and the high hills surrounding. The corn hills were still easily discerned, though the Indians had long since ceased to cultivate them, having gone to the station at the Ance. Our guide, who had visited these fields thirty years ago, informed me that the Indians were then very successful in the cultivation of corn. That it matured better here than at any place they had tried north of Mackinaw; and that they had experienced less disaster from the frost than at any other point on the lake.

Sturgeons crowd Sturgeon river and the Portage Lakes. Scores of them can be seen glittering at full length above the water, and multitudes of wild ducks flock here. But, amid much that is luxurious, these beautiful lakes are visited with the plague of the "little beaver," a small, hard, black insect; to which, from its shape, the Indians have given this name. They move in swarms with much rapidity on the water. Their presence renders it dangerous to use the water for drinking, without great precaution. Being once introduced into the stomach, they industriously work their way in any direction, causing great pain and almost certain death.

The trap range crosses Portage Lake at the mouth of "Going Home Stream" and "Trap Rock river," about ten miles from the Portage. The hills in the vicinity are very high and abrupt. Mineral indications of the most encouraging character are scattered over these hills. Some years ago a pure copper rock, of one hundred and fifty pounds weight, was found a short distance up the "Going Home Stream."

The Indians estimate the distance from the mouth of Portage river to the Portage at thirty miles. They pass in canoes from the Ance to Lake Superior in one day, via the Portage.

Whenever the mineral and agricultural productions of this section will authorize it, propellers may be employed with great advantage.

In reference to the geology of the country between the Portage and Copper harbor, I can add nothing to the excellent description given by Major Campbell, in his report of December, 1843. I examined the vein on Eagle river.

On the 8th of September I left Copper harbor, under your instructions. Major Campbell took our supplies in a small boat to Iron river. I went by the Ance, for the purpose of procuring a good guide, to make a thorough exploration of the country between the Portage and the Ontonagon.

The Indians at the Ance are nearly all embraced in the Methodist and Catholic missions. The emulation between the two establishments has tended greatly to the improvement of their condition. The Indians, cheerful and contented, are only anxious to secure their lands and improvements as an inheritance to their children. They besiege every Government agent with whom they come in contact, to represent them favorably to their great father at Washington.

There is a good harbor just below the Methodist mission, and the whole country is exceedingly fertile. To the mineral district it must become

the principal dependence for supplies. Potatoes, turnips, and beets, of great size and excellence, can be raised here in luxuriant abundance. The vegetables I saw, from the garden of Mr. Brockway, are not to be surpassed any where in the United States. Sulphuret of iron prevails here, and stones of superior properties for use as hones are numerous. At a distance of ten to twenty miles sweeps Sturgeon river, half encircling the Ance, and falling into Portage Lake. There are four feet water on the shoals in ordinary stages, and, by the removal of a few fallen trees, it would be navigable to within ten miles of the Menomonie. The land between the Ance and Sturgeon rivers has a southwestern aspect, and resembles very much the bear-grass lands of Kentucky. From the evidences I saw, I am induced to believe that blue grass can be cultivated with great success. The early fall of snow guards the soil from the severe winter season, as is shown by the fact that potatoes may sometimes remain in the ground all winter without injury. Thus blue grass would continue in a green and growing state the whole year. Mules are the best stock to be employed in this country, for bearing burdens, ploughing, and travelling. It must be long before good roads can be established; and in the intervals, if the Indians at the missions were furnished with mules instead of oxen, they would gladly trail the country.

I crossed Sturgeon river ten miles west of the Catholic church. The Indians had here thrown a dam across the river, where they kill thousands of sturgeons with the spear.

The ascent to the high ground at the head of Gravort and Miserere rivers is almost imperceptible. Scarcely any portion of the country is too uneven for the plough. Sugar is the predominant growth, with a few pine, elm, poplar, linn, oak, box, adler, and ash trees.

The trap range crosses the head of Miserere river, and is about twenty miles from the lake. It forms the highest elevation of land. It is occasionally cut by a small stream, but more frequently indented by lakes from a half to two miles wide. Exposed veins of mineral are not as likely to be found here as upon Keweena point. The gentle laving of the water in the streams has made but little impression on the beds of mineral which doubtless exist underneath. From the trap range, the highlands at the head of the Menomonie are in view; distance about fifty miles. Porcupines, partridges, and ducks, are the only kinds of game we saw. Indeed, with the exception of rabbits, and an occasional bear and deer, I believe they are the only kinds ever found in this region. Martens, beavers, otters, minks, and muskrats, are caught in large quantities by the Indians in the winter. Mr. James Paul has found many slabs of pure copper in the hills around the forks of the Ontonagon, varying in weight from five to fifty pounds. A specimen was given me by Mr. Paul, to be presented to the department. From the forks of the Ontonagon to the mouth, the soil is of delightful fertility. Except maize, and all the productions of the territory adjacent to Lakes Michigan and Erie can be equalled here, both in excellence and abundance. There is a good entrance at the mouth of the Ontonagon; from seven to twelve feet water on the bar.

At the Ontonagon agency I met Major Campbell. He had examined a portion of the Porcupine mountains, and the hills immediately west of the Ontonagon. Upon conferring with him, we thought it best, in view of your instructions, that I should examine the head and branches of the

Menomonie and Wisconsin rivers, and that he should follow the supposed mineral district west to the Mississippi. From my knowledge of this gentleman's intelligence and fidelity to the service, I doubt not that the department will have ample cause for approval of his investigations and report.

On the 27th September, I left Copper harbor for the head of the Menomonie and Wisconsin rivers. By the politeness of Mr. Brush, sutler at Fort Wilkins, I was furnished with a full supply of provisions, and every thing necessary for the trip. An intelligent half-breed, Mr. George Burkett, of the Ance, acted as my pilot. By employing extra help, I had all my supplies carried at once to the head of the Menomonie. We were five days crossing the Portage. Ten miles from the Ance, there is a tableland prairie, of about twelve miles in extent. It reaches to Sturgeon river, and is dotted over with numerous small lakes. At Sturgeon river, Burkett was taken sick, and returned home.

At the topmost elevation, the highlands of Keweenaw point are full in sight. The waters of the small streams move almost imperceptibly over grass, in gravel bottoms. Saw nothing but large white boulders to indicate the existence of mineral. The boulders were all strongly impregnated with sulphur,—the blow of a hammer creating a powerful sulphurous odour.

On the 9th of October, I entered the Menomonie, at its head, with my provisions, in two small canoes. For thirty miles, to the mouth of the Great Swamp river, the Menomonie, but for its acute angles and occasional rapids, might be taken for a canal. The bottoms are low, and covered with the finest grass.

From this point, the river changes its character, and the rapids become much more frequent.

In many shoal places, we were obliged to lift the canoes over the rocks; stepping with bare feet over the chill slippery boulders, at this season, was very severe. Between the rapids, the river often widens into small lakes.

At fifty miles from its source, the Menomonie receives the waters of the Wabegog. The latter is nearly as large as the former. Its source is near the Old Sarden Lake. It is navigable for canoes most of the way. Before reaching the Wabegog, we passed six falls; portage around them about five miles. Ten miles below the Wabegog, there are falls, around which we had to make two miles portage. There were large white boulders, of the same character as those on the highlands.

Trout river comes in at about thirty miles below the Wabegog. It is chiefly a chain of lakes; its mouth also expanding into a lake. It is a favorite place of resort for the Indians, being famed for its fine trout, its wild fowl, and other game. I obtained specimens of the green silicate, between the Wabegog and Trout river, that will yield about twenty-five per cent. Wood and water power ample upon the premises. Ten miles below Trout river is a perpendicular fall of twelve feet, where I collected some rich specimens of iron ore. Five miles below Iron falls commences the "Three Link portage," No. 1, Pine portage, on the right bank, two miles long. From this, in order to cross, you ascend the river a few hundred yards, to Ravine portage, on the left bank, a mile and a half in length; thence down the river a short distance to Maple portage. There are extensive sugar camps, where large quantities of sugar are made by the

Indians. The passage of Three Link portage is very hazardous and laborious. There are many perpendicular falls, some of them at least thirty feet. The entire fall of the river in a course of five miles is about two hundred feet. Near the end of Maple portage is the mouth of Brulé river. Here the hills assume a new character—sharp, high, and rocky. Birch is the predominant growth. About six miles from the portage, we come to the Michegamican river. Just at the mouth of the Michegamican, there is a perpendicular fall of fifty feet, producing great power for water works. Spar veins and white boulders innumerable could now be seen on either side of the river. The hills here divested of trees, long since burnt off, left the spar veins and white boulders unobstructed to view for miles around. On these high hills I found very many spar veins, running generally east and west; a few large veins, however, having their direction north and south. On the most elevated ridges, with a prospect unlimited but by the circle of the horizon, this wild country lies open before you, in all its grandeur of inexhaustible resource. Here, far from the fertilizing warmth of equatorial skies, the earth embosoms treasures that climates cannot affect.

Day after day I traversed these veins, seeking favorable places for obtaining specimens. I could only follow them over the hills till they were lost in the rich alluvial bottoms. With my limited means and a broken pick, I could not obtain the best specimens. I saw two veins, each 14 inches wide, of deep blue translucent spur.

About eighty miles from the mouth of the Menomonie, in an indentation of one of these ridges, I found a vein of rock, showing itself at intervals, for one hundred yards through the deep rich loam. The rock is more friable than that on Lake Superior, and will yield between 30 and 40 per cent pure copper.

Just below the White rapids is a north and south vein of pyritous copper, crossing the river, the white spar making it conspicuous as you pass. I obtained over forty varieties of specimens, some of which I purchased from the Indians of the Old Gardens; but they were unfortunately lost in crossing McLeod's mill dam, eighteen miles from the mouth of the Menomonie. The canoe capsized in the mill stream, and it was with the utmost difficulty the men reached shore. I made many efforts to reclaim the specimens, but the deep foaming rapids proved too much for the most skilful Indian that could be found. I had designed having an analysis of these specimens embodied in this report. Many of them were to me entirely new in their character, and I am unable to supply their loss.

In view of the water power of the Menomonie being used for mineral purposes, it would be well for the Government to prohibit the erection of dams without ample locks.

I would also suggest that the owners of the present dams be required to erect suitable locks, and in a reasonable time; upon non-compliance, that the dams be removed by the Government, at the owner's expense.

There are extensive saw mills now in operation two miles from the mouth of the Menomonie, to which is attached a valuable fishery. The water on the bar at the mouth of the river, I am told, is never less than six feet.

My design, when I left Copper harbor, was to descend the Menomonie to the Burnt district, and, after examining that, to proceed to the Lake of

the Old Gardens, in quest of the much talked of copper rock; then to pass down the Wisconsin to Fort Winnebago. But Burkett's sickness and my want of success, owing to the early cold weather, in persuading any other person to accompany me in the trip, obliged me to abandon the project.

I would here remark, that the Indians of the Old Gardens, and of the Ontonagon and the Ance, all affirm, in the most positive manner, that there is a copper rock full ten feet square between the Lake of the Old Gardens and Trout Lake. I purchased specimens from the Old Garden Indians of this reported rock. They were cut out with a tomahawk, evidently with much labor. From the character of these, I am led to believe that it is similar to the rocks I found on the Menomonie. I have no doubt as to the existence of a very large rock; and, if not pure copper, that it is richly impregnated with large and small pieces of the native metal. Evidently it has been an object of worship with these Indians; and no doubt summary punishment would still be inflicted on any of the tribe who would be rash enough to betray it to a white man. They will keep the exact location a secret among themselves, till the temptation of handsome presents to all shall overcome their lingering veneration for their ancient Manatou. Serious difficulties were near arising from the few specimens sold to me. * * * * *

I strongly recommend the intersection of the country by trails, eight feet wide, beginning at Green bay; thence, in a pretty direct line, to the Menomonie, about 125 miles from its mouth; thence, via Trout river and the Ance, to Copper harbor—distance about 250 miles. Also, a trail to commence at the Little Bull falls, on the Wisconsin river; thence between Trout Lake and the Lake of the Old Gardens, intersecting the trail from Green bay about twenty miles from the Ance—distance about 200 miles. Also, a trail from the Lake of the Old Gardens to the mouth of the Montreal river—distance about 100 hundred miles. Also, a trail from the Montreal river, following the trap range until it intersects near the Portage the trail from Green bay to Copper harbor—distance about 125 miles. Also, a trail from the mouth of the Menomonie, to continue on the north side of the river, up to the trail from Green bay—distance 125 miles—making, in all, a chain of trails of not more than 800 miles.

The present mode of exploration, as practised in that country, is both unsatisfactory and expensive, three-fourths of the travel being by water, in small boats and canoes. Indeed, without trails, it must continue impossible to travel in any other way. For example, it is considered two good days' work to cross Keweenaw point, from Copper harbor to the mouth of Montreal river—distance only six miles; whereas eighteen miles round by water is only half a day's journey. Mule trails would be preferable to wagon roads, because they can be carried over the highest land, where the mineral is most likely to be found. After the richer mineral districts shall be certainly ascertained, other improvements for transporting the metal may come into use.

By the aid of these trails, active, laborious men, from the mines of Wisconsin and Illinois, could enter mineral lands at any point. A mule or poney could carry the necessary tools, and provisions (with aid from a good gun) for two or three months. With moderate travel, mules will improve on any of the routes, from the middle of May to November, by grazing at night and being allowed a short rest at noon.

At Chicago I employed Mr. William Schlatter, a competent artist, who has himself made an accurate survey of Keweenaw point, to make a map from notes of my own, and sketches and notes obtained from Major Campbell, and Mr. John Bell, Indian trader at Iron river, and Mr. James Paul, miner from the forks of the Ontonagon. Also, sketches from Burkett and the chiefs of the Ontonagon and Lake of the Old Garden bands. The whole has been examined and approved by Indian traders on the Menomonic, who have passed through every part of the country. I have little hesitancy in offering it as the most accurate map that can be had without an actual survey of the country. On it I have marked the mineral and the best agricultural districts, together with the proposed trail.